



EV Market

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What percentage of new car sales are projected to be electric in 2025?

- 5%
- 10%
- 15%
- 20%



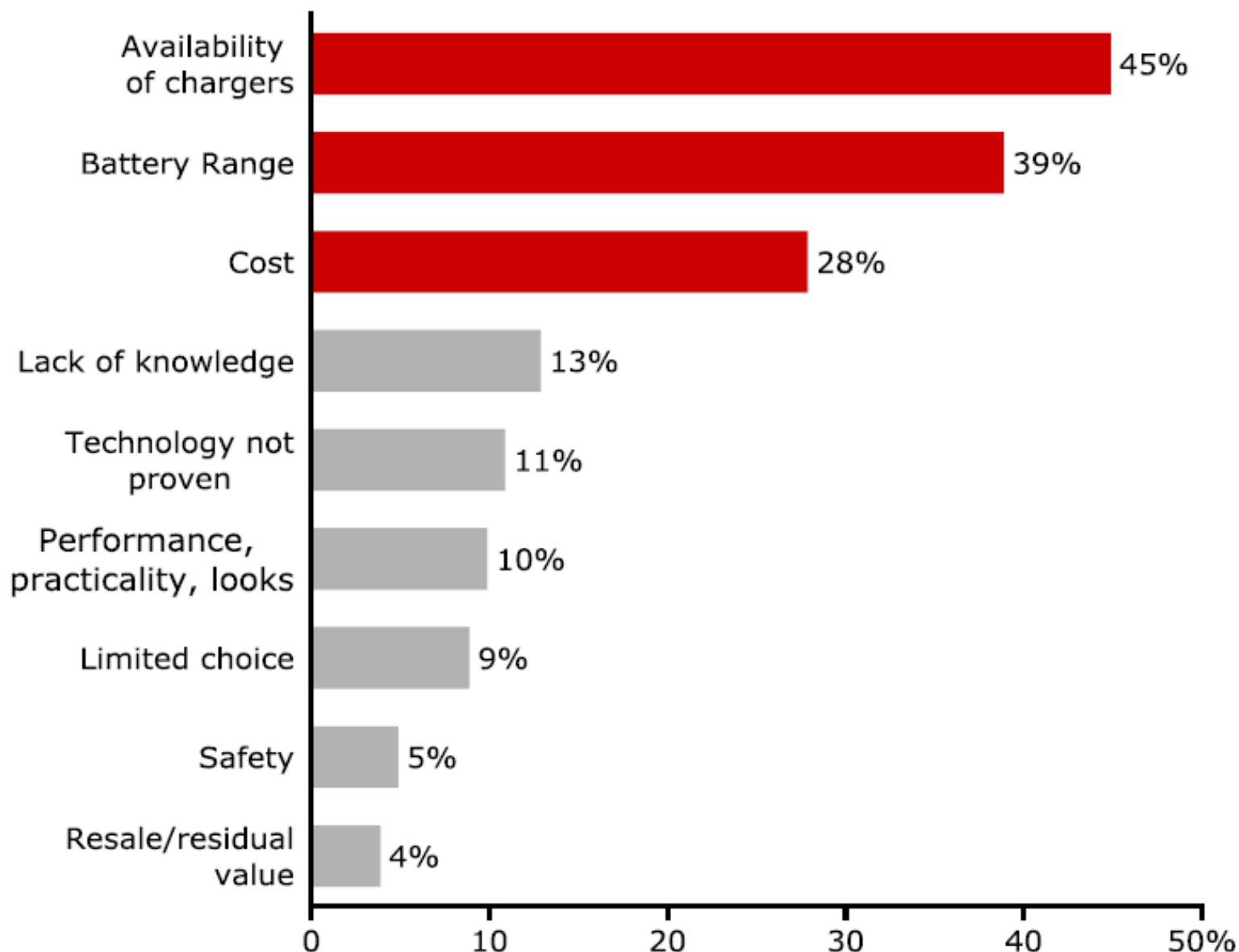
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Reason for not purchasing an EV



Source: Bain analysis

Source: Department for Transport (2016); Forbes (2017)

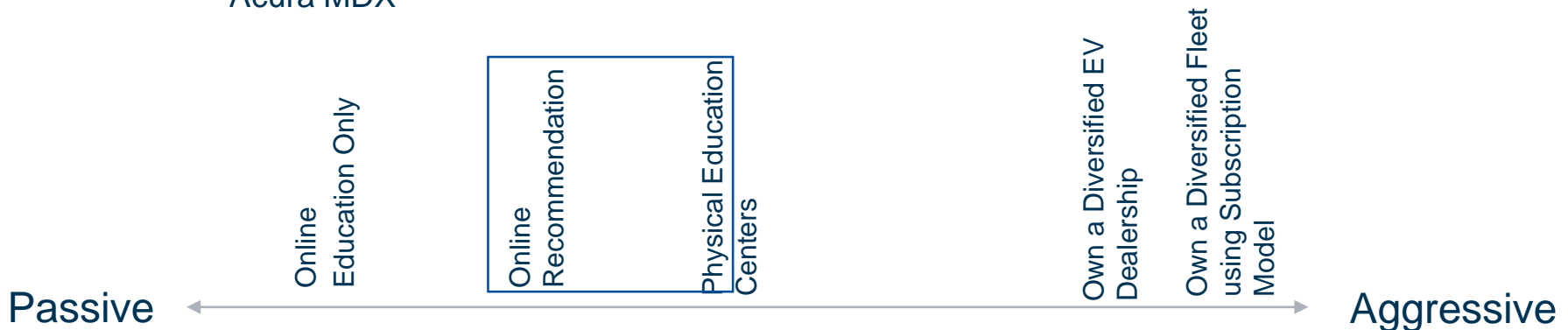
Model Availability

There is limited class breadth:

- No PHEV or BEV trucks
 - Workhorse BEV Pickup in 2019 (5,300 pre-orders)
 - Tesla BEV 2020
 - PHEV F150 2020
- Limited PHEV Vans
 - Pacifica launched in 2018
- Limited PHEV Jeeps
 - Land Rover
- Limited PHEV SUVs
 - Nissan Rogue
 - Acura MDX

There is also limited brand depth:

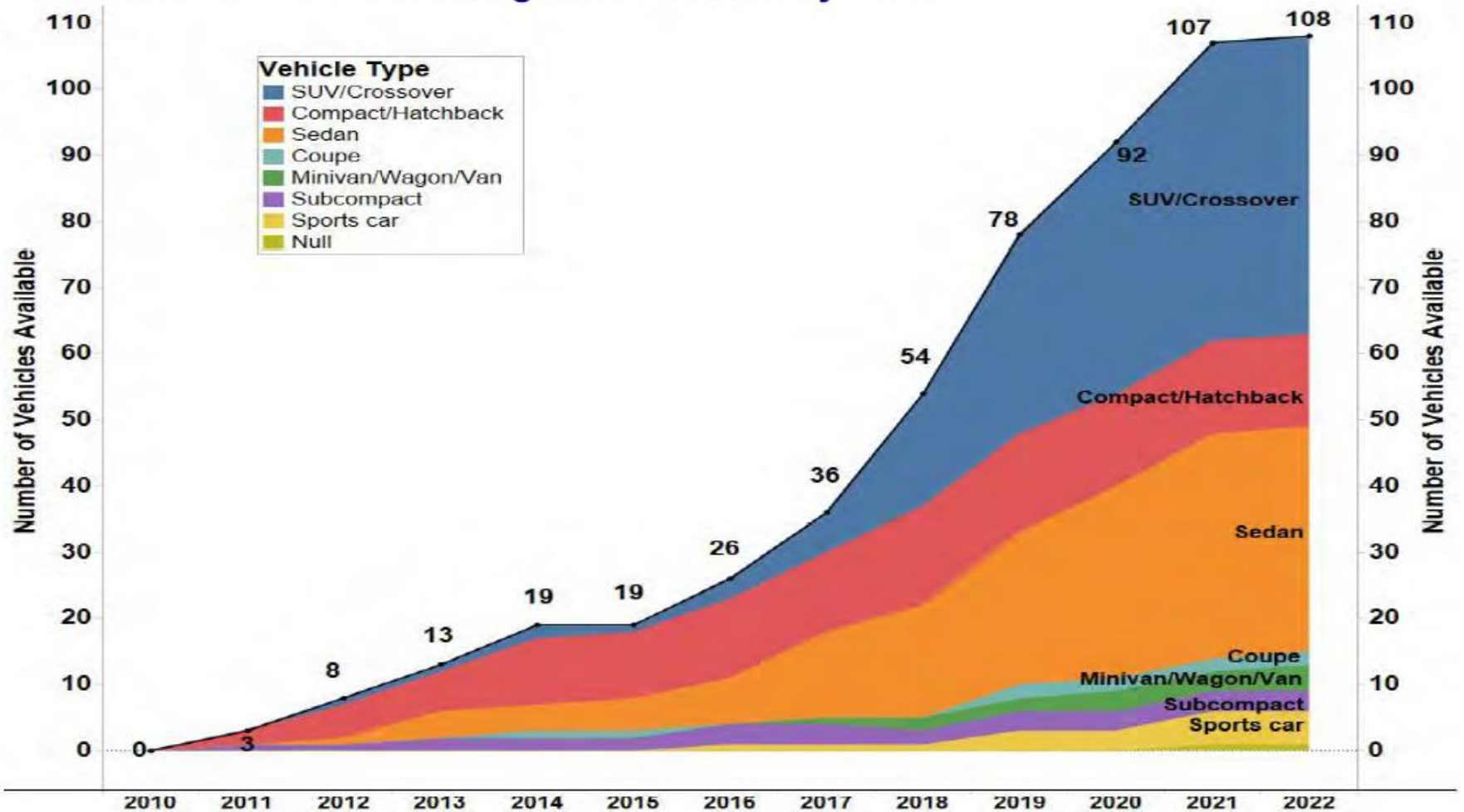
- Dealerships limited by brand on models





Forecast: Plug-in Electric Vehicle Models

Customer choice increasing with 108 EVs by 2023



Source: EPRI

Batteries

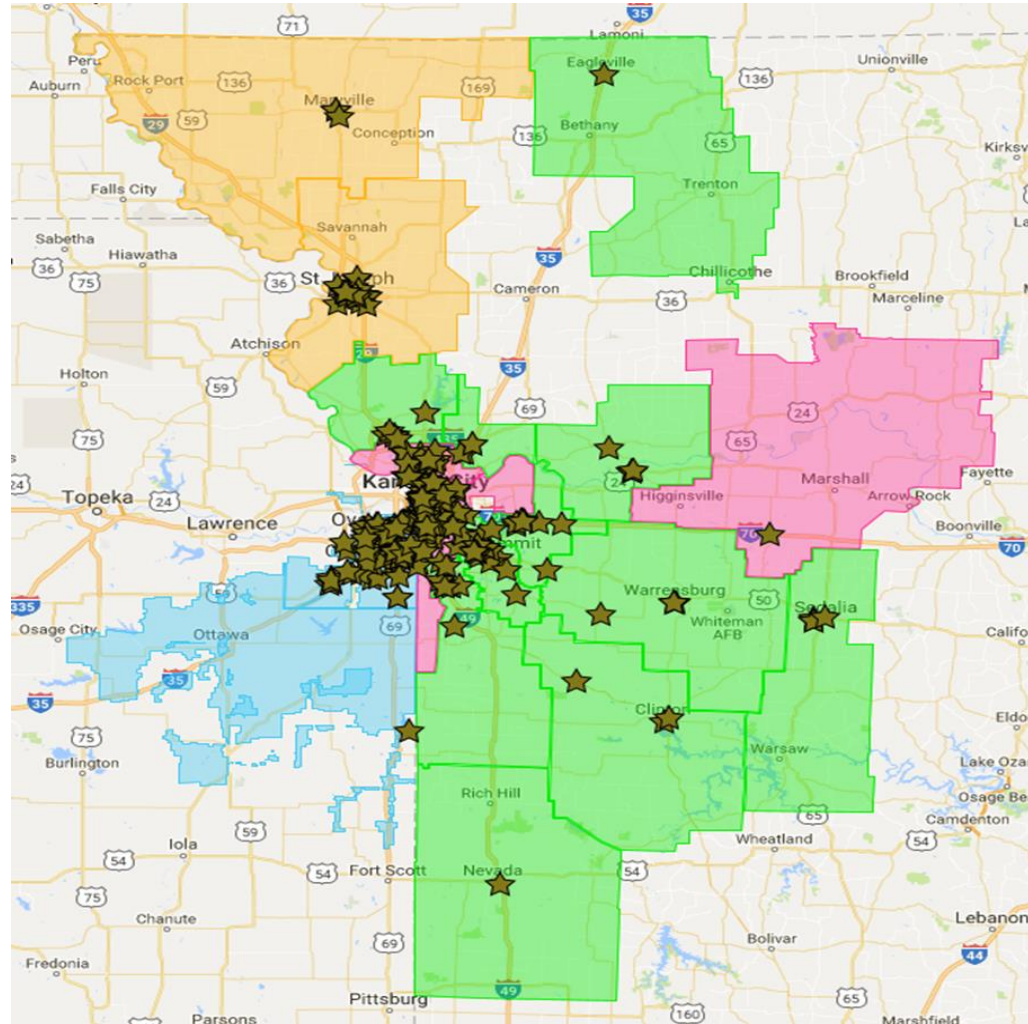


- Reducing batteries to \$100/kWh or below enables immediate price parity with same range.
- Solid state batteries expected around 2025.



KCP&L Clean Charge Network

- » Launched in 2015
- » 2,000+ L2 chargers ports
- » 16 DC Fast Charger ports
- » Site Host network
- » Currently the largest EV network in the US owned by Energy provider





Accelerating EV Driving

ClimateWire

AUTOS:

How Kansas City became the EV mecca of the Midwest

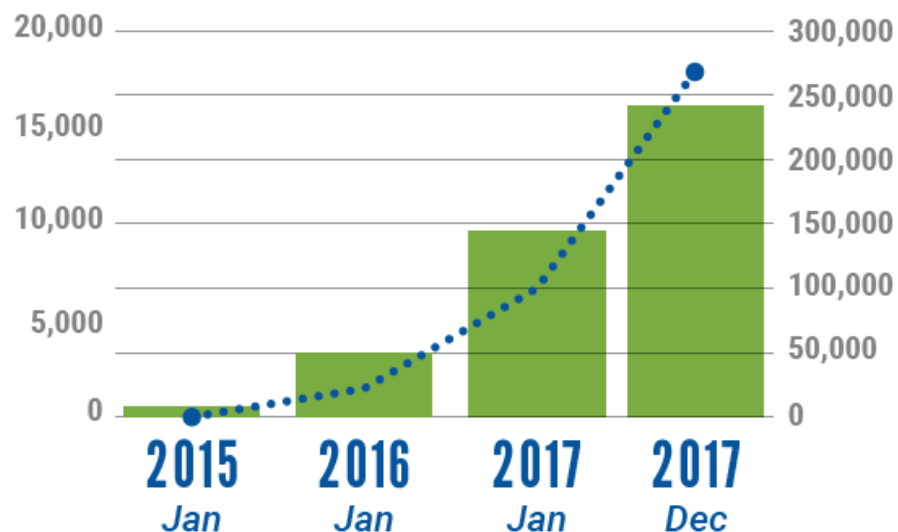
Camille von Kaenel, E&E reporter

ClimateWire: Wednesday, August 3, 2016

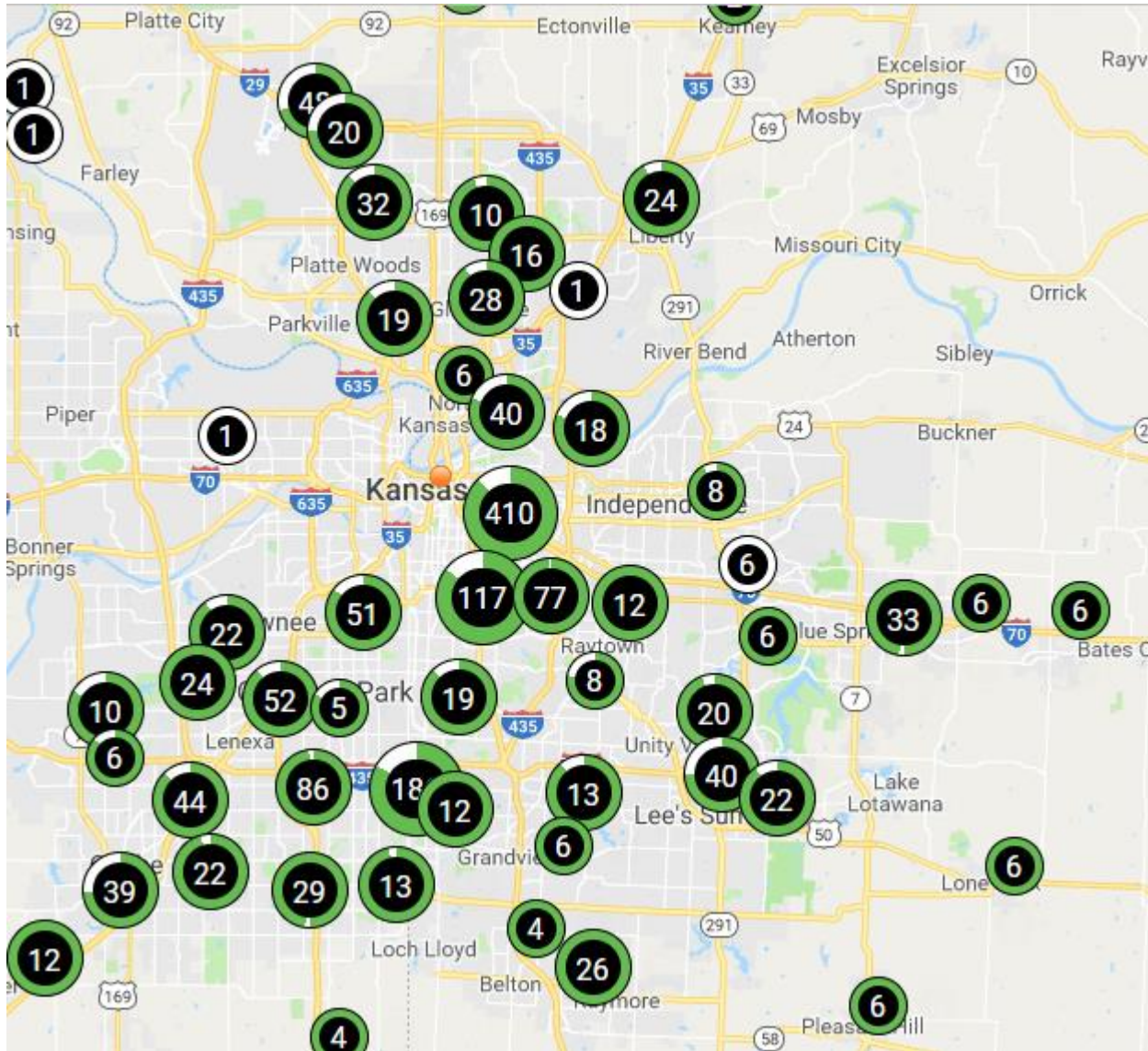


Kansas City, Mo., has been at the forefront of smart city technology, from a new electric st automatically dim. Photo by Camille von Kaenel.

Charging Sessions
3,041% ▲









TIME MAGAZINE



This City May Soon Be the Best Place to Own an Electric Car

A huge plan is in the works to juice electric vehicle adoption.

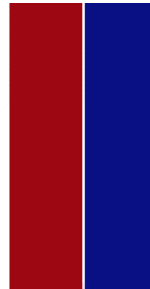
TIME.COM



Top 10 CCN Site Hosts



BLACK & VEATCH



 **Saint Luke's**
HEALTH SYSTEM

 **MC**
REALTY GROUP, LLC



JOHNSON
COUNTY
KANSAS

 **CORPORATE WOODS®**

MAXUS
PROPERTIES



Who is Using CCN?

1,244 Registered CCN Drivers in June 2018

2018 Driver Stats	
Total # Drivers Accessing Fast Charge	450
Usage >500 kWh <1,000 kWh	18
Usage >1,000 kWh	4
Total # Drivers Accessing Level 2	2,494
Usage >500 kWh <1,000 kWh	187
Usage >1,000 kWh	92



Kansas Charging Station Landscape

Westar CCN 2018 deployment

- 60 Level 2 charging ports
- 10 Fast Charge stations

Electrify America

VW Mitigation Settlement



What percentage of Westar & KCP&L energy generation is carbon free?

- 15%
- 25%
- 30%
- >40%



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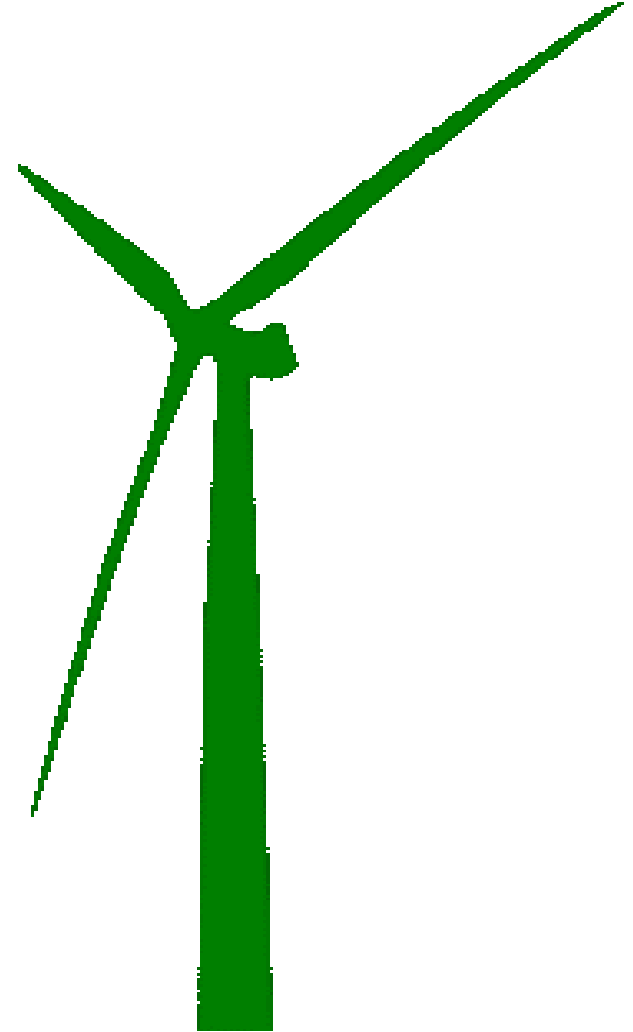


>30% of Evergy's customers energy is generated from wind



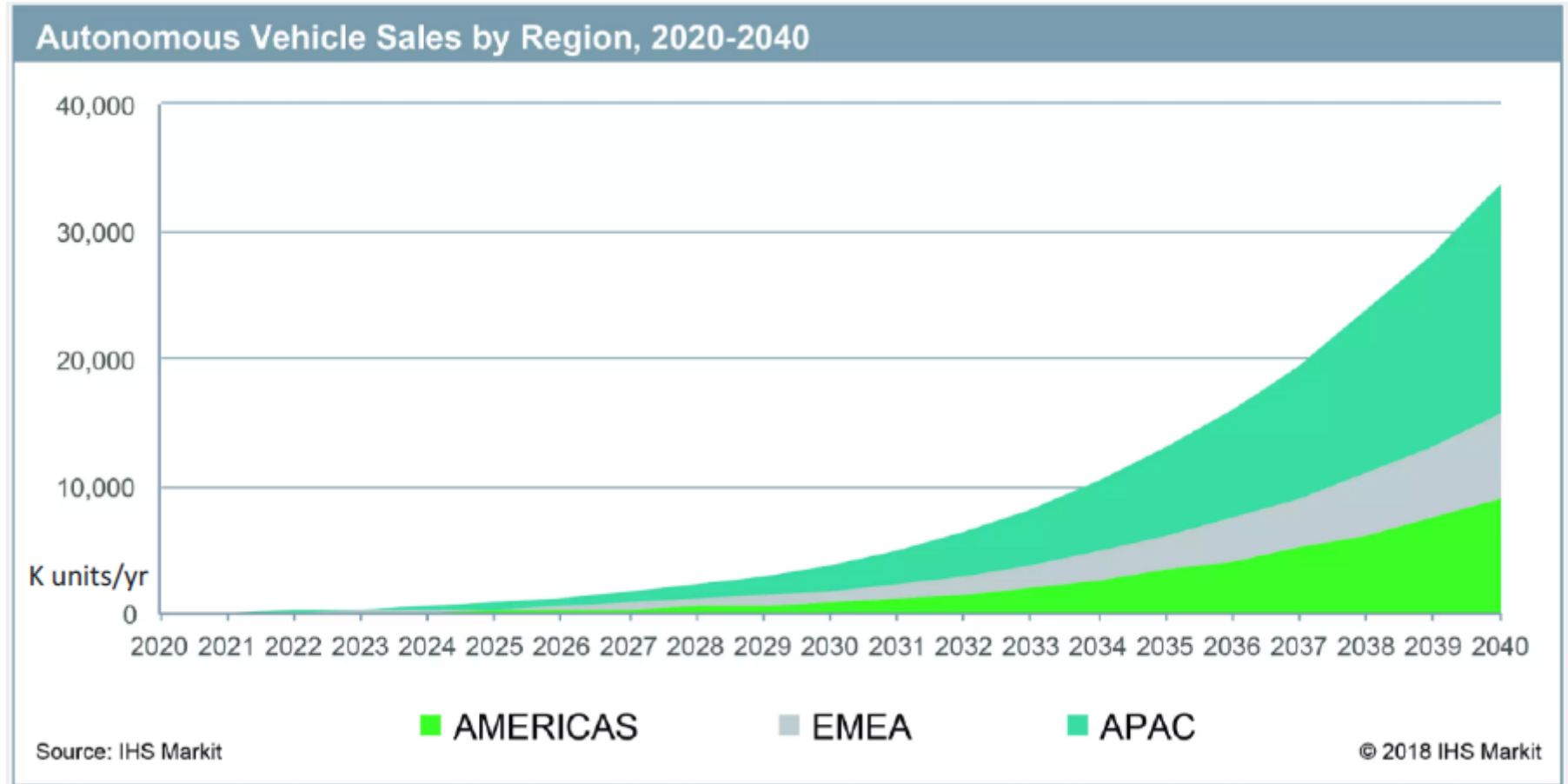
Drive for the Green

- **Evergy** is investing to make the source of electric vehicle (EV) energy even more green.
- EVs sold in Kansas and Missouri will be powered by renewable energy coming from wind farms through retirement of renewable energy credits (RECs).
- As a result, the carbon footprint for new electric vehicles purchased in Kansas and Missouri will be **virtually** eliminated.





Autonomous Vehicle Projections





When will AVs be on the road?

GM will make an autonomous car without steering wheel or pedals by 2019

:Bugging-eye emoji:

By Andrew J. Hawkins | @andryjayhawk | Jan 12, 2018, 12:01am EST



Waymo backup drivers, like the one in this recent photo, often can be seen with their hands on the steering wheel. A new study shows that autonomous technology is not yet ready to handle driving on its own, and that attentive drivers are still necessary.

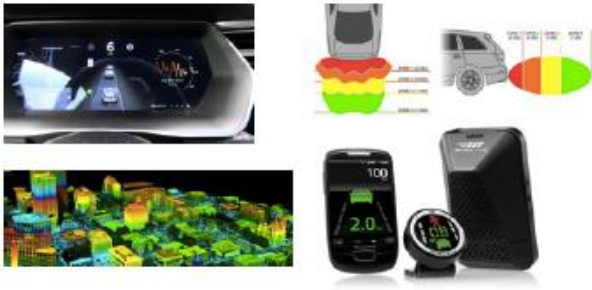
Ray Stern

Report: Tests Show Fully Autonomous Vehicles Not Ready for Public Roads

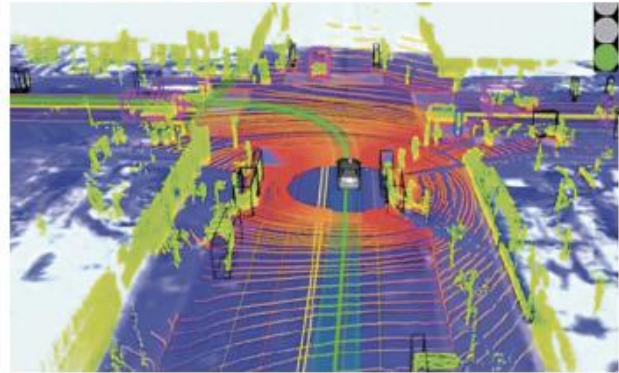


Autonomous systems & technology stack

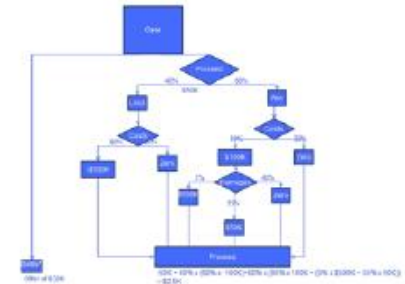
Sensors



HD Mapping



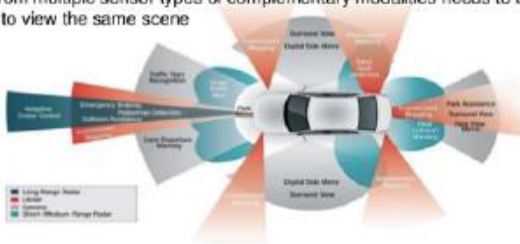
Decision systems



Sensor fusion algorithms

Sensor fusion

For increased accuracy and robustness under a wide variety of conditions, data from multiple sensor types of complementary modalities needs to be fused to view the same scene



Object segregation, tracking, classification



Actuation systems



 **For more information**

www.kcpl.com/cleancharge

www.cleanchargenetwork.com

